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AUTHOR Jensen, Gail M.; Saylor, Coleen
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ABSTRACT

The usefulness of portfolios for professional development and reflection was studied in the disciplines of physical therapy and nursing. The student sample may not represent the larger population of professional students, but data are presented as useful in understanding more about the general phenomenon of use of portfolios in professional education. Subjects were 32 entry-level master's degree physical therapy students in a research course, 12 baccalaureate nursing students in a community health practicum, and 5 master's degree nursing students in a clinical teaching practicum. Portfolios were prepared by students and used in combination with student self-evaluations and instructor assessments. Data suggest that the use of portfolios promoted student reflection on professional development. Identified portfolio components and implementation benefits and barriers are relevant findings for educators wishing to facilitate reflection. One table lists some example guidelines for portfolio development. (SLD)

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PORTFOLIOS AND PROFESSIONAL DEVELOPMENT IN THE HEALTH PROFESSIONS

Gail M. Jensen
Department of Physical Therapy
Samuel Merritt College
Oakland,CA

Coleen Saylor
School of Nursing
San Jose State University
San Jose,CA

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ABSTRACT

Increasing concern in professional and education focuses on the gap between thought and action, theory and practice, the academy and the everyday world. Reflection, a component of Shulman's Model of Pedagogical Reasoning and Action, is described by Schon as combining education and experience to produce new ways of knowing and thinking. This project piloted the usefulness of portfolios for professional development and reflection in two disciplines, physical therapy and nursing. Data obtained by analysis of student portfolios and evaluations suggest that student reflection upon professional development was promoted. Identified portfolio components and implementation benefits and barriers are relevant findings for educators wishing to facilitate reflection.

Schon (1992) argues that a contemporary crisis exists in professional knowledge and education because of a widening gap between thought and action, theory and practice, the academy and the everyday world. Furthermore, teaching is often seen as a process of delivering information to passive students and evaluating them for knowledge retention, while relatively disconnected from the everyday world of professional practice. Portfolios provide one education strategy to address this problem of reconnecting student to the practice elements of a discipline through an active, reflective learning process.

The use of portfolios for student assessment within the health professions is increasing as the complexity of what professionals are expected to do continues to increase (Romberg,1990;Oechsle, Volden, & Lambeth,1990). As educators face ever increasing demands for "thinking practitioners," the limits of standardized testing and normal curves are clearer, and health professions educators seek alternatives to past assessment methods. Therefore, the possibilities of portfolio performance assessments borrowed from fields as diverse as business and the arts, "have become increasingly, perhaps even romantically, attractive" (Wolf, Bixby, Glen, & Gardner, 1991).

Portfolios, used for a long time in fields such as writing and fine arts, have recently been implemented as assessment strategies in fields such as teacher education (Arter & Spandel, 1992; Collins, 1991; King, 1991; Wolf, 1991) and nursing (Deckert, 1990; Oechsle, Volden, & Lambert,1990). In addition to simply providing

new types of evidence in a different format, portfolio assessment also allows students and teachers to be allies in the evaluation process (Mathies & Uphoff, 1992), and provides a structure and process to facilitate reflection among students often constrained by a model of technical rationality. Indeed, Wolf, et al. (1991) suggest that portfolios suggest a transition from a "testing culture" to an "assessment culture" as a means to assess thinking rather than simply testing the possession of information. And at the heart of this assessment of thinking, is reflection, judgment, and discussion, essential activities for health professionals.

CONCEPTUAL FRAMEWORK

Shulman's(1987) conceptual model of teaching, The Model of Pedagogical Reasoning and Action, provides the conceptual framework for this project by identifying the components of the teaching process. Reflection, one of the components of the model, is defined as reviewing, reenacting and analyzing one's performance and grounding explanation in evidence. This is the set of processes through which a professional learns from experience.

Reflection-in-action (Schon, 1983,1987) is the process whereby the professional practitioner combines education and experience to produce new ways of knowing and thinking about problems in a domain. This argument criticizes current professional preparation for its focus on "technical rationality" rather than dealing with the "messy problems" students will encounter in real professional practice. These situations must be interpreted and defined in light of the context involved (Lichtenstein, Rubin, & Grant, 1992).

Schon (1987) argues that reflection must be a central element of professional curricula. Yet, few structures exist which support or allow the time for this piece of professional education.

Portfolios, then, may well provide one excellent strategy for increasing reflective activity and thoughtful assessment. Portfolios usually represent a collection of student work, done over time. Portfolios provide a vehicle to look at practice by providing opportunities for reflective writing, deliberation, and serious conversation (Shulman,1988). Portfolios put emphasis on human judgment and "meaning making" by identifying not only where the student ends up, but how he or she got there. Portfolios can include examples of good and problematic work, and ultimately are inquiry driven (Forrest, 1990; Hutchings, 1990; Lichtenstein et al., 1992). Although portfolios are "messy to construct, difficult to score, and vulnerable to misrepresentation" (Shulman, 1988), it is this ambiguity that gives portfolios the potential to be so illuminating about professional education (Lichtenstein et sl., 1992).

The purpose of this project was, first, to investigate the usefulness of a portfolio as a mechanism to facilitate reflection and to assess thinking and professional development in three specific groups of health professions students. The second purpose was to identify components of a portfolio that were most useful to the students and to the instructors.

METHOD

Three courses of health professions students developed

portfolios as part of their Spring, 1992 semester course requirements. Participants included entry-level master's degree physical therapy students (n=32) in a research course, baccalaureate nursing students in a community health practicum (n=12), and master's degree nursing students in a clinical teaching practicum (n=5).

Two types of data were collected in this project, product data (the portfolios) and evaluation data (student and instructor assessments). Each class was given general guidelines regarding components of the portfolio (Tab. 1). The portfolios were handed in at the end of the course for instructor review and feedback. Following the development of the portfolios students identified benefits and barriers of the portfolio experience. In the case of the physical therapy students, this was written feedback gathered through the use of a brief evaluation form. In the case of the nursing students, this feedback was gathered orally during the last class session.

Data Analysis

The first step in the analysis process involved a general review of the portfolios noting the types of evidence used by each student for the respective class. The portfolios included student papers, evidence of student activities, journal entries, exams, pictures, course evaluations, student self-assessments, student projects, and copies of program curriculum materials.

We then met to discuss our separate findings and generated four common coding categories consistent with our portfolio data

and the literature (Forrest, 1990; Hutchings, 1990; Wolf, 1991). These categories included artifacts, journal entries, course evaluation, and reflection. For this project, we defined artifacts as activities, projects, and papers that were evidence of student accomplishment. Journal entries were defined as narrative descriptions of student activities throughout the course. Course evaluations included comments students made in their portfolios which assessed the value of the learning experiences that were part of the course. Reflection, the fourth category, was evidence of the student's insight into his or her own professional development and ideas about how to improve oneself. These four categories were then used for rereading and coding all of the portfolios. We also exchanged samples of portfolio data for review of each others' data. The categories we defined appeared to be distinct and representative of our data.

Student feedback data was gathered after the portfolios were completed. The data were first sorted according to the responses to the pre-defined categories of what were the benefits and what were the barriers of this learning experience. Within each category a inductive content analysis process (Berg, 1989) was used to identify common themes that applied to responses from nursing and physical therapy students.

A second meeting of the authors was used for instructor reflection on the experience. Each instructor generated a list of applicable course evaluation findings from her review of the portfolio data and then met for discussion and identification of

areas of commonality.

The purpose of this project was to pilot the potential usefulness of a portfolio in specific courses within a professional curriculum. The student sample, however, may well not represent the larger population of professional students in physical therapy and nursing. We make no attempt to generalize these results, but instead consider them useful for understanding more about the general phenomena of the use portfolios in professional education.

RESULTS

Artifacts

The portfolios varied in their structure, complexity, and thoroughness. The artifacts component included examples of required activities, projects and papers written by the students. Those students in the teaching practicum included paper and audiovisual materials they developed for the classes they taught such as overhead transparencies, short quizzes, lecture outlines, and diagrams used in teaching. The undergraduate community health nursing students included care plans developed for families, nutritional and developmental assessments, and descriptions of community resources they utilized for their assigned families. The physical therapy student' portfolios contained items such as clinical case papers written for other courses, collages or other visual displays that represented their ideas about research as well as the various stresses and experiences of being a student, or required readings that contained examples of their written critiques.

We found that students needed some suggestions regarding the artifact section of the portfolio, and a short class discussion on what others were including facilitated this process. Some students showed a great deal of pride over these materials, usually when they were created individually. For example, overhead materials and short quizzes developed by a student for a lecture were cherished and only a copy of them were put in the portfolio for the instructor. Other students, however, saw the collection of these artifacts as simply meeting another of the teacher's requirements and invested as little as possible.

Journals Entries

Journal or log entries comprised the second component of the portfolios. All of the students had course requirements to keep a journal during this particular semester, although some of the journal entries became emotionless lists of tasks performed by students, devoid of much thinking. Some examples follow here:

> Attended a QA/QI (quality assurance/quality improvement) meeting and discussed measures, outcomes, current practice and the direction the committee needed to go.
>
> Preliminary work with a nursing budget. I have to research non payroll budget items and justify increases in payroll budget for the meeting. 3.5 hours.
>
> Need to do a literature review and outline of method by April for our research project.
>
> The semester begins in January while our class is in the middle of anatomy. Only 6 weeks until our final. This has been a very demanding class for me.

Reflective Entries

Many other journal entries and self-assessments, however, brimmed with insight and reflection on the learning process. A

student nurse visiting poor urban families wrote:

> I have learned so much more than what's in our texts. I not only taught my clients, but they taught me. I was able to see their survival techniques and their strengths. I also realized that the clients were very much receptive to what I had to offer and were eager to learn and be taught. I think too often we tend to view the under-educated as people who are unable or "unwanting" to learn.

Another student in the same practicum wrote:

> I am finding myself becoming culturally aware and accepting of clients' values and beliefs. I am slowly but surely realizing that my purpose is not to completely change how they live; rather, I help them to decide how they can integrate their culture, social beliefs, and values in a way that will allow them to achieve the goals necessary for a higher level of wellness.

This student liked the independence of making home visits alone.

> I have been using all the resources to figure out what I will be doing with my clients. This is the first time that I have actually enjoyed looking up information in practicum... I am learning more on my own, with the instructor (who is a) PhD, than I am by being at the PhD, no offense to anyone.

Later in the semester, the previous student wrote:

> I have seen a dramatic change in myself. I have successfully completed presentations, home visits, and community health nursing care plans that I thought were going to be quite difficult. I look back on the beginning of the semester and remember how impressed I was with the nurses here... I realize that I had developed my own communication style which proved to be just as effective as that which I tried to model myself after.

Several physical therapy students wrote about their prior and

and current views regarding research.

> I used to be very narrow minded, accepting only true experimental as valid research. Through this course, I began to appreciate the merits of qualitative research and its importance to the development of the profession.

> Research was once something I wanted to avoid. I now find myself interested in playing a part in our profession's developing knowledge base.

We found examples of both nursing and physical therapy students providing an account or "summary of journal reflections." Here is an example from a nursing graduate student teaching undergraduate nursing students in a practicum.

> I noticed changes and growth throughout the semester. I began with feelings of confusion and apprehension, but ended with feelings of confidence and an excitement to accept new challenges. My journal entries seem to be divided into three sections. The first section focused on me, my confusion, and how to organize my learning contract. The second section dealt with the needs of the nursing students. I began to focus on process and analysis. In the beginning I found myself giving students most of the answers when they asked me questions. Later, I was able to assist them to think through a problem and reach a solution themselves. The third section focused on my overall learning outcomes and the characteristics I admired in my preceptor... remaining calm, patient and supportive.

Another teaching practicum student in this class wrote as follows.

> I have a better understanding of how students think. For example, novice nurses can only focus on one task at a time. They were unable to listen to me or to communicate with patients while they were emptying a catheter bag or setting up an IV. They were unable to process information as quickly as I thought. ...In the future I will expect to repeat similar information more than once.

A physical therapy student described her experience throughout the semester like this.

> We had many projects that not only forced me to conduct more library searches than I ever cared to, but the research also encouraged me to sharpen my inquiry skills at clinical. I found myself developing an ongoing thought process during my observations. It was no longer enough to blindly accept what I was being told. I would take the pieces of information and ask myself why various dysfunctions were occurring, and if treatments made sense. Were they reliable and valid? Were they based in proof from the literature or simply tradition and authority? Research has developed my critical critiquing skills. I feel this process is not only causing me to be a better researcher, but it is also helping me to work toward becoming a "scholarly clinician."

Another student wrote the following:

> As the research class progressed so did my understanding of its importance, its intensity and its relevance to perpetuate the profession. I've gone from looking at an article, skimming its contents and just reading the results to critically analyzing the method and seeing how the results correlate with everything. Articles are more meaningful now.

Course Evaluation

Many of the portfolios included comments which assessed the value of various learning experiences to the student. Although this category was not suggested to the students, many of the portfolios described how much students had learned from the courses, whether it was understanding the value of research to the profession, or the benefit of specific assignments. This category provided beneficial information for instructors. A physical therapy student wrote:

> Before I started the program, I never realized the major implication that research had on the physical therapy community. I was naive and completely unaware of what was going on in the field.

Another student wrote about his experience with a take home examination.

> Week #11 -- Excellent test! It turned out to be a test I put more time into than I thought I would. However, it was time well spent. It was very appropriate use of a take home test and the bonus is -- I actually learned from it! It is a nice change of pace to learn from a test and not just perform.

Benefits and Barriers

In addition to the portfolio components, we specifically asked the participating students about the benefits and barriers involved in constructing their portfolios. We were disappointed by the meager thinking and effort of some of the students, so solicited

authentic feedback both verbally and in writing.

Benefits. We asked the students to describe the benefits of the portfolios, if any. The two themes that emerged from the benefit data included the opportunity to be reflective and the opportunity to be creative. Student reported that the portfolio provided a structure for looking at their progress across time and reflect are seen here in these student comments.

> It's helpful to think about what you've learned. I could see my progress.
>
> It's good to evaluate yourself and lay out what I've learned.
>
> When you experience this you want to tell someone, and I could express my feelings and my experiences. But, I would have preferred guidelines.
>
> How much I accomplished in a 4 month period.
> The fun part was looking back at the beginning and seeing the difference now. Now I know I'm accomplishing something.
>
> Doing the portfolio allowed a lot of time for reflection that I would not have done otherwise.
>
> It gave me a chance to reflect.
>
> I learned a lot about myself. Reflecting is a wonderful idea. It really allowed me to concentrate on what I learned and helped me realize that I need to learn more.
>
> It wasn't so much what I learned as what I validated to myself. In a way it allowed me to mark what I learned.

A second benefit identified by students was the opportunity to be creative. These are the kinds of comments that students made.

> I learned to be creative, to be organized and to take some time to mull over my feelings about certain things as they were going on in class.
>
> I'm a lot more creative than I thought I was. Doing the portfolio caused me to look back at myself throughout the year at what I had learned and I learned a lot.

> Creativity was the most important thing, though I know my portfolio did not exceed the efforts of my classmates, I found that because I had no guidelines whatsoever I was going to have to be responsible for organizing this thing.

Barriers. Insufficient time provided the most frequent obstacle to well developed portfolios. Students made comments like these.

> Time. I couldn't allot enough time during the semester.
>
> Time. Reflection requires time. Don't have a lot of it.
>
> It was difficult to take the time to work on it, because once I got started, I didn't want to stop.

One student saw the project as simply one more task to do. She stated that she remembered her feelings on her own and did not like the project at all. Students with lots of assigned activities and projects may be more likely to view the portfolio as busywork.

A second major obstacle for students appeared to be a fear of uncertainty expressed most frequently in relation to the lack of clear guidelines or format.

> The fear of not having a clear idea of what I want from [a journal].
>
> Lack of guidelines in a way. I guess having no guidelines really gives us format to use without being wrong.
>
> Initially, I did not know what it was for. As I progressed, I realized it was for reflection. If you put too many guidelines on the portfolio, the realization might not occur or be appreciated.
>
> Not really knowing what to put in and how it was going to be graded.
>
> Given open instruction for "anything" makes me nervous about what really should go in it.

DISCUSSION

The portfolio can serve as a means of collecting evidence about the effectiveness of an educational program (Forrest,1990). In our case, we chose to use portfolios to explore student learning experiences in specific professional courses. The portfolio enabled these professional students to reflect upon their professional development throughout the semester. They provided the structure for serious conversation about one's own professional development. Following the ideas of Lichtenstein, et al. (1992), portfolios are perhaps more valuable for what do, rather than what they are.

Reflection did play a central role in many of the portfolios. Evidence of reflective thinking was seen in many of the journal entries and self-assessments where students expressed insights about their learning process. The portfolio also provided a framework or structure for the reflection process. Several students commented on how the portfolio forced them to organize their thoughts and reminded them to take time to reflect. Richert (1990) also found that the creation of a portfolio among student teachers provided a structure for more reflection than a non-portfolio group. We found that thorough, dedicated students created their own structure for the portfolio whereas, students who were pressed for time or who had lower expectations took advantage of the lack of structure to turn in a portfolio that was almost useless.

The artifact and course evaluation components are easily

understood. They provide the opportunity for students to showcase examples of projects and activities as well as provide feedback on parts of the course. The journal and reflection components, however, were more problematic. Sometimes reflective thinking, the real purpose of the portfolio, was absent. Instead of emphasis on journal and specific reflection components, we suggest one reflection component which could include reflective journal entries, self-assessments or other pieces of writing which show insight into professional development and ideas about how to improve oneself. Therefore, our ideal portfolio would have three components, artifacts, reflection entries and course evaluations.

The instructor needs time to talk about the portfolios during the semester, as well as to facilitate short discussions about what students are including, underscoring the importance of this activity in one's professional development. We believe that the instructor plays an important role in helping students to value the portfolio and make time for it.

CONCLUSION

Portfolio-based assessment can provide a context where students engage in the assessment process as an occasion for learning (Wolf, Bixby, Glenn, & Gardner,1991). As professional educators, we are interested in facilitation of student thinking and evidence of reflection, judgment, and critical thinking as well as possession of information. Our student portfolios appeared to provide us with candid pictures of what these students were learning. This assessment tool however, unlike more traditional

methods of assessments, represents a human document.

As a human document the portfolio may defy our traditional rules of evaluation, (eg, developing high interrater reliability when assessing the portfolio may be difficult. Wolf et al. (1991) argue that portfolio assessment will not lead to a single statistic or assessment of student performance and, furthermore, it is likely that there will be diversity of opinion among appraisers. They suggest that one strategy is to begin by agreeing on relevant categories for describing student performance. In our case, we relied on qualitative research methods for our initial assessment of the portfolios and did agree on four broad categories of evidence. In the future, we will need to develop thoughtful and useful rules of evidence that can illuminate a wide range of capacities among students. We also may need to devise ways of looking at student profiles and envisioning assessment of portfolios as informing rather than measuring (Wolf et al., 1991).

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Table 1. Example Guidelines for Portfolio Development

Question	Explanation
1. What is a portfolio?	A portfolio is a compilation of evidence that can be used to provide us with additional insight into your educational experience.
2. What is the purpose?	The portfolio represents an artifact that we can use to look more deliberately at your experience in this course.
3. What should we do?	The portfolio is your own creation and can include papers, journal entries, examples of classroom work or anything else that is meaningful to you and represents your growth and understanding in this area.
4. Requirements?	1) a 3 ring binder to collect your materials; 2) examples of jounral entries; 3) self-assessment